Exhibit D - Factor 2: Need / Extent of the Problem

State of Illinois

ILExhibitDNeedProblem.pdf

Most Impacted and Distressed

Disasters in Illinois are typically not well-known mega-events like Hurricane Katrina or Superstorm Sandy, but rather smaller-scale events that cumulatively result in significant damages to health and safety, housing, infrastructure, economic competitiveness, and ecosystems. For instance, typical spring storms have led to major road, rail, and utility outages, mold and maggots in basements, severe erosion, sewer overflows, closures of local businesses, and deaths. Flooding stands as the primary hazard facing this region, accounting for 41% of disaster losses statewide and resulting in over $195 million in FEMA National Flood Insurance Policy payments to the region since 1978.

The State had 89 of 102 (87%) counties with major declared disasters from 2011 to 2013 with a total of 146 county declarations. The federal declarations in the State included Severe Storms, Straight-Line Winds and Flooding (DR-4116) in 2013, Severe Storms, Straight-Line Winds and Flooding (DR-4157) in 2013, and Severe Storms and Flooding (DR1991) in 2011. Below is a summary table showing the number of residents, percent of low income family, and cost impacts from these events.

Disaster	Residents Impacted	%Low Income	Cost Estimate
FEMA-4157-DR	2,441	10.7%	$11.0 Million
FEMA-4116-DR	3,517	10.7%	$23.8 Million
FEMA-1991-DR	955	53%	$13.2 Million

The geographic representation of the target areas throughout the state range from the southern most point of Illinois in Cairo and Brookport, to central Illinois communities around Peoria, to north central Illinois communities of Spring Valley, Ottawa and Marseilles, to our northeast Illinois partners in DuPage County, Cook County and the City of Chicago. The State's

target areas include 2,439 housing units that were damaged with serious damage to 863 homes. Impacts to the specific target areas can be found in the threshold narrative (ILExhibitBthreshold.pdf pages 3-14).

Many of the target areas are along major rivers, such as Alexander County, Brookport, Spring Valley, Ottawa, and Marshall County, and many experience flooding. In the case of Cairo in the Alexander County target area, Brookport, and Ottawa, their Most Impacted criteria was not determined by the overbank flooding of the river, but instead the inability to convey local water effectively to the river causing basement and local drainage flooding. These areas have aging and under maintained infrastructure in distressed portions of the communities.

The pilot areas selected by the State and our Regional Partners are representative of the spectrum of social, ecological, and built conditions and vulnerabilities found across the state and, together, allow the state and region to learn from distinct but coordinated solutions that address different mixes of vulnerabilities. When scaling this project statewide (explained in Factor 3b), other places can learn from the processes and solutions developed in the pilots areas by adapting various interventions to their own community profiles. These lessons can also be applied to plan for changing economic, social and demographic trends throughout the state.

Unmet Recovery Needs

As listed in the threshold narrative (ILExhibitBthreshold.pdf pages 3-14), the State is submitting 10 target areas with $5.7 million in infrastructure unmet recovery needs, 166 housing units in housing unmet recovery needs and 5 businesses with economic revitalization unmet recovery needs.

The State has Unmet Recovery Needs that will take a comprehensive risk approach to address by continuing to work with federal, local, nonprofit and other stakeholder partners to

assess the nature and scope of damages caused by storms utilizing both local and regional input as well as science-based data in developing the proposed projects for each target area. Priorities have been established to facilitate thoughtful and effective recovery, and the State is refining its framework to streamline recovery in a manner consistent with its priorities.

The state will utilize a diverse toolbox of science-based solutions when evaluating components of the project including items detailed in Factor 3b part 1 of this application. A structural risk assessment (further detailed in Factor 5, item 7) will be conducted on all structure in or near the floodplain. An analysis of each structure will evaluate the risk and damage magnitude for an area to determine if individual structures need to be flood proofed, elevated or bought-out and returned to public open uses.

The impacts of flooding are exacerbated by four regional factors. First, the severity and frequency of flooding events are only expected to increase with climate change. Based on 2014 National Climate Assessment (NCA), northeastern Illinois is expected to have as much as a 20% increase in precipitation in the winter, spring, and fall over the next century (see the later part of Factor 2 for more description of regional climate risks). Historical impacts and flood modeling will be adjusted for future impact predications to provide solutions that account for future threats to a community. Future threats will be adjusted for dynamic elements such as climate change impacts to rainfall and forecasted urban development. Second, a CMAP analysis of the state of the region's infrastructure shows that it is both aging and not built to accommodate the frequency or intensity of rainfall events already being experienced, much less those expected to occur in the future. These same conditions are common statewide. Third, based on a region-wide analysis of the National Land Cover Database, urbanizing development patterns are increasing imperviousness, particularly in upstream areas of Lake and McHenry Counties, resulting in more

runoff that flows toward Cook and DuPage Counties. Fourth, communities facing chronic and concentrated vulnerability in terms of income level, age, race, educational attainment, English proficiency, medical condition, and transportation access are also the ones hit hardest by flooding. The disproportionate burden of losses in specific communities is a symptom of regional vulnerabilities and inequities that need to be addressed in order to make communities statewide more resilient.

The State Resiliency Team(see Factor 4), in cooperation with the local stakeholders, will collaborate to develop initiatives that lead toward recovery and resilience in the State's housing, economic, infrastructure and health and social service sectors. All developed initiatives will include cost-benefits analysis to address quantitative measures are met while including qualitative measurement factors that improve benefits that may be intangible.

It is the State's intent to utilize this opportunity with the 10 eligible target areas and to refine our comprehensive risk approach in developing solutions that address communities long term threats, hazards, and economic growth for all proposed projects.

Responses to Questions

What threat(s), hazard(s), or vulnerability(ies) are you are focusing on? Floodplain and urban flooding (see definition below) are the most prevalent hazards across the State, especially in light of recent climate change impacts, and are therefore, the primary focus of disaster recovery, mitigation and unmet need statewide. Urban flooding is further exacerbated by aged, undersized, and deteriorating storm water infrastructure systems all of which impact socioeconomic, economic, and public health conditions in Illinois communities. However, the disasters of 2013 also highlight that the entire state from Coal City to Brookport is vulnerable to the devastation delivered by the forces of tornados. Finally, the threat of earthquake intensifies

the further south you go in Illinois. Any resilient disaster recovery effort or mitigation activity will need to give consideration to these common threats in Illinois.

How did you identify it/them? Several state agencies in Illinois have a long history of responding to disasters in Illinois, especially flood and tornado disasters. More recently, the State through its ongoing Urban Flood Awareness Act Study and associated insurance claims data call has identified the breadth and magnitude of urban flooding as a significant source of flood damages in Illinois too. The consistent message delivered by impacted community officials and distraught citizens during the community engagement activities conducted by the State and the regional partners to identify vulnerabilities and unmet disaster recovery needs, affirmed these hazards as the most prevalent.

Who and what are/have been/will be affected by events related to them and what are the future risks from the threat(s), hazard(s), or vulnerability(ies)? The State, in partnership with our local communities, has made tremendous progress toward flood risk reduction, and flood hazard mitigation through engineering studies, constructed reservoirs, floodwalls, channel improvements, and buyouts of impacted structures statewide. Municipalities and vulnerable areas such as East St. Louis, Olive Branch, Meredosia, Des Plaines and many more have reduced or eliminated the effects of flood threats. Many Illinois communities now also understand the vulnerabilities associated with urban storm water flooding and associated deteriorating storm water systems and are beginning to take measures to address this hazard through green and grey infrastructure improvements. However, despite these efforts, many more areas in the state simply clean up and repair damage from disastrous floodplain and urban flooding events and leave themselves susceptible to future risks and repetitive damages.

What data and other information did you use to identify the risk(s) or vulnerability(ies) and over what timeframe? The law directs HUD to use the best available data. Why is the information you considered the best data in your geographic area?

Specific risks, vulnerabilities and unmet needs in the most impacted and distressed target areas were identified through outreach collaboration in partnership with our regional planning commissions' statewide and local communities in those regions through a series of public meetings and conference calls. As part of the Urban Flood Awareness Act Study, the State of Illinois conducted a statewide on-line (surveymonkey.com) survey in October 2014 to solicit information related to individual and community urban flood damages, regulations, mapping, programs and existing strategies to identify the risks and vulnerability associated with urban flooding.

Climate change data was considered in particular from the Midwest Regional Climate Center and Illinois State Climatologist who developed downscaled models that projected that annual precipitation could increase by as much as 20% by the end of the century, particularly during winter and spring months, with a significant portion from more frequent heavy rainfalls. As a Cooperating Technical Partner (CTP) with FEMA, the state is involved in the development and authorization of floodplain mapping statewide and the state relied upon FEMA floodplain and floodway maps for flood risk identification. The validity of this mapping is conducted through FEMA's CNMS system, thereby assuring a level of quality control and quality assurance. Recent LiDar information is also used to better define local flood risks especially in urban environments.

In 2014, the Center for Neighborhood Technology (CNT) produced a report addressing the cost and prevalence of Urban Flooding in Cook County, IL (CNT, 2014). Insurance claims

data, primarily from the Federal Emergency Management Agency (FEMA) and private insurers, was used to study the cost and distribution of claims in Cook County. As a follow-up to that study, insurance claims data for Illinois was requested by the state from private insurers and the FEMA-National Flood Insurance Program (NFIP). All claims data represented basement/foundation flooding, including sump pump failure and sewage backup, not due to riverine flooding. The private insurance data included location (street address), date of loss, date of claim received, and final payment amount for 184,716 claims from 2007 through September, 2014. The NFIP data included location, date of loss, and final payment amount for 47,713 claims from 1976 through October, 2014. Analysis of this information indicates that only about 78% of the urban insurance claims resulted in a monetary payment, with the rest remaining as unmet need.

These effects must be taken into account using a risk management approach, accounting for relevant uncertainties. Given the history of your region, climate change projections, demographic and development trends, and other factors as appropriate, what risks is your community facing? How serious and likely are the risks? What are your "known unknowns"?

The three greatest natural hazard risks facing Illinois communities are: tornados, earthquakes and flooding. Flooding risks are further categorized into stream floodplain flooding and urban flooding. The extent and severity of both of these types of flooding are continually being exacerbated in Illinois by ever increasing rainfall intensity events, expanding urban development (more impervious areas), and deteriorating infrastructure. Urban flooding in particular is heavily impacted by these factors.

"Urban flooding" is the inundation of property in a built environment, particularly in more densely populated areas, caused by rainfall overwhelming the capacity of drainage systems, such as storm sewers. "Urban flooding" includes (i) situations in which stormwater enters buildings through windows, doors, or other openings, (ii) water backup through sewer pipes, showers, toilets, sinks, and floor drains, (iii) seepage through walls and floors, and (iv) the accumulation of water on property or public rights-of-way." Urban flooding can be further defined by the source and root causes of the problem such as: poorly drained soils, inadequate drainage system capacity, inadequate drainage system inlet capacity, topography (natural low areas), imperiousness, high water table and/or backwater on a stormwater outlet. While federal, state and local programs exist to help address and mitigate floodplain flooding, very few if any means exist to address flood problems and damages outside the mapped floodplain or to help an ever-growing population of urban flood victims. Several communities statewide have expressed concern about urban flood areas of their communities becoming blighted due to repetitive urban flood impacts and about the value of properties in these areas rapidly declining because of growing flood damage stigmas associated with certain properties (including businesses) in their communities.

To what extent are public and private buildings, improvements, and residences in your community un-insured or under-insured for the risk(s) you have identified? If your community has been subject to repeated flooding, what is the estimated portion of the uninsured structures are subject to the so-called "one bite rule" related to the requirement to maintain federal flood insurance coverage? How has this affected and how will this affect your current recovery and future resilience? What factors are affecting individual and community decision about purchasing and maintaining sufficient insurance?

Almost 90 percent of Illinois communities participate in the National Flood insurance Program (NFIP), or 877 communities. This is one of the highest levels of NFIP participation in the nation. The State requires any community receiving financial assistance from the state to be in the NFIP. However, there are only 50,000 flood insurance policies in force in Illinois. The State estimates that 15% of the population of Illinois, or 1,935,000 people live or work in a designated floodplain. Generally, less than 50% of the target areas are covered by flood insurance or basement backup insurance. Since flood insurance purchase requirements are tied to mapped Special Flood Hazard Areas for private property that secures a loan, and for public property that is seeking FEMA Public Assistance for flood damage following a disaster declaration, any property that experiences flood damages that isn't in a mapped SFHA is likely to be uninsured. Accordingly, most of the uninsured structures are subject to the so-called "one bite rule" related to the requirement to maintain federal flood insurance coverage.

As discussed during the Urban Flood Risk Symposium in February, privately marketed sewer backup and sump pump overflow insurance coverage is often limited to relatively small amounts of coverage and no provides no guarantee that it will continue to be available after one or more claims. So buildings that are known to be susceptible to that kind of damage, rather than a flood as defined in the NFIP standard policy forms are almost always underinsured or uninsured. The degree of underinsurance would depend on the type of building. A building with an unfinished basement might be in fair shape if it has the coverage, but a finished basement, or worse, a basement that is used as someone's primary living space (i.e. a "garden apartment" in a multi-family building) is likely to be severely underinsured from the perspective of someone who occupies that space.

As the State works with the target areas of unmet recovery need identified in this application, the target area community must participate in the NFIP. Additionally, the recommended purchase of flood insurance would serve as a base action for at risk structures as we work with the various communities to implement alternatives to reduce risk and enhance resiliency.

Finally, factors affecting individual and community decisions about purchasing and maintaining sufficient insurance include: the level of knowledge or uncertainty about flood insurance coverage, imposed mortgage requirements, common misconceptions that flood insurance isn't available, denial of risk, and rising insurance premium costs.

How will addressing the threat(s) and hazard(s) related to this vulnerability(ies) address specific unmet disaster recovery, affordable housing, economic revitalization or restoration of infrastructure needs from the Qualified Disaster? How will addressing the risks from this vulnerability help your community recover, protect your community's recovery projects/efforts, or revitalize your community from the effects of the disaster you had?

The goal for flood related disaster recovery is to modify uses of the floodplain area such that flood events do not result in damages or disaster. Structural risk assessment uses economic based flood damage analysis tools to help determine most effective mitigation measure such as buy-outs, elevations or flood proofing. The structural risk assessment will identify and prioritize mitigation actions noted above necessary to eliminate or reduce future flood risk. Especially post disaster, many of the occupied floodplain areas carry a flood stigma that negatively impacts the residents and businesses living and working in the floodplain and the community as a whole. The same holds true for areas impacted by urban flooding. Implementing mitigation measures based on sound structural risk assessment science often ignites economic revitalization of a

community as the mitigation measures visually change the characteristics of the most distressed and impacted areas in a resilient manner and remove the negative stigma previous associated with the area. Where property buy-outs are utilized the newly created open space can be repurposed into a resilient use such as a park, urban wetland, or community garden.

Are there risks with disproportionate effects on any population groups? Describe and identify whether the disproportionate effects relate to household income or a particular protected class. Will some of the risks disproportionately affect those with accessibility challenges? Can potential solutions benefit those with functional needs? Does the identified vulnerability(ies) offer any opportunity(ies) for disaster recovery and economic revitalization, including resilience to future and current risk? Why is addressing the risk related to this vulnerability important to your state, region, and local community?

While tornados and earthquakes can impact high and low income families in Illinois alike, flooding disproportionately affects low to moderate income families the most. As part of the state's Urban Flood Awareness study, USCB 2013 average annual household income for each census tract was used to assign an average annual household income to each insurance claim. The average household income for Illinois' urban areas is $58,452. Figure 2b-1 shows the distribution of annual household income for Illinois' urban areas, regardless of claims data, and the distributions of annual household income for the NFIP and private (urban flooding) insurance claims. The figure reveals that the greatest percentages of insurance claims are filed by households with incomes from $40,000 to $75,000. Insurance claims are drastically lower when household incomes exceed $110,000. Both floodplain and urban flooding disproportionately affects those with accessibility challenges making it more difficult to flood proof their homes, move possessions to higher elevations, or even safely evacuate their

properties. Significant public servant dollars are spent during floods to recue these individuals. Repurposing floodplain uses in the target communities through priority based buy-out, elevation and flood proofing mitigation activities provides an opportunity for these challenged individuals to reside in lower risk environments and potentially reduce public service emergency rescue expenditures. Relocating low to moderate income families out of the floodplain reduces their need to pay higher insurance premiums (much higher in relation to their incomes) to cover their risk. As evidenced by the recent disaster declarations in the subject target areas statewide, significant federal, state, local, corporate and private resources are spent each year on flood fighting, flood response, public safety, and flood cleanup each year plus lost production, revenues, taxes and wages. Implementing resilient measures to create more flood event resilient communities is an important objective of the State and its local and regional partners.

The increasing prevalence of urban flooding has caught the attention of many home and business owners in Illinois as well as the attention of the insurance, real estate, banking, and property development industries. The Illinois General Assembly has directed state agencies to explore the magnitude, extent and opportunities to address this growing concern. The time is right in Illinois to deliberately incorporate resiliency measures into the push for greater urban flood awareness and solutions. However, the State is also challenged with fiscal issues (barrier) that threaten the state's ability to adequately meet the demand for resilient disaster recovery needs in distressed target areas without additional supporting resources.

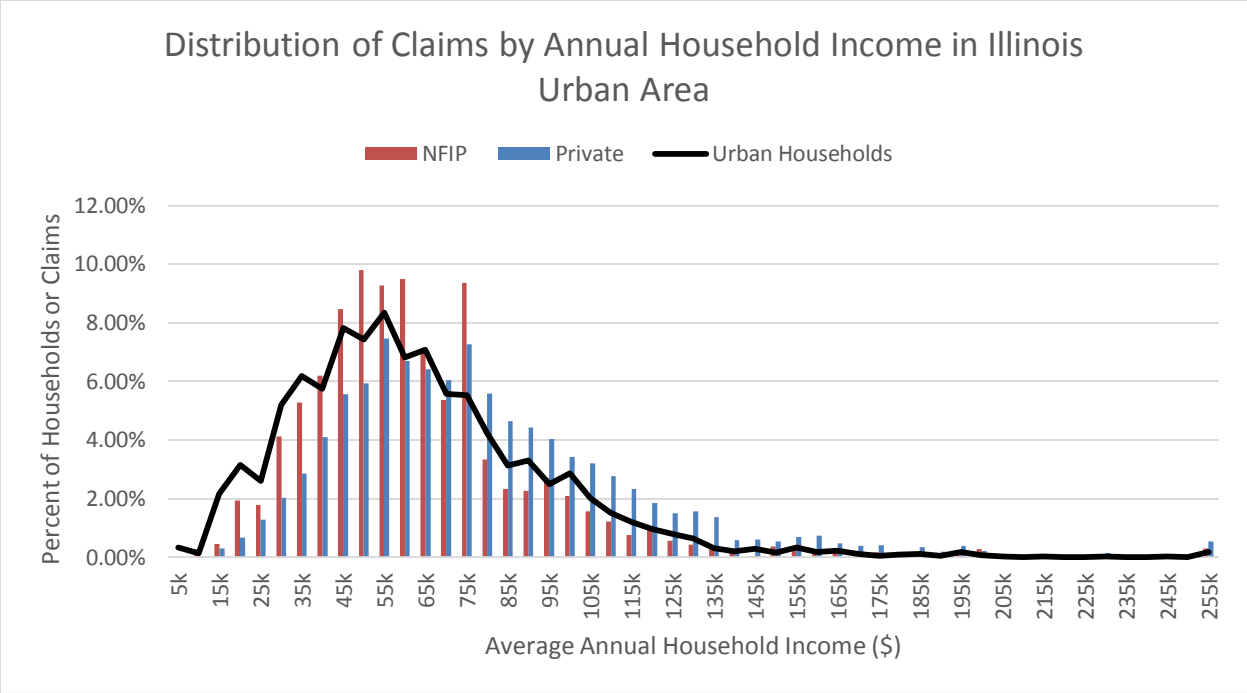

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Figure 2b-1- This graph shows the distribution of annual household income for Illinois' urban areas and the distributions of annual house income for the NFIP and Private insurance claims 2007-2014.

Are there existing conditions in your community that exacerbate vulnerability (e.g. environmental pollution, significant economic downturn)? You may cross-reference and summarize your response to the Most Impacted and Distressed threshold, if such a condition(s) is described there?

Illinois is mostly bordered by large rivers and water from 24 states enters or flows along Illinois' boundaries. Illinois also has one of the largest inland systems of rivers, lakes, and streams in the entire nation. Most of the inland streams have wide flat floodplains that encompass many structures due to the glaciated topography of the state. Due to the strong agricultural industry in the state, the state is blessed and cursed with an abundance of levee and non-levee embankments statewide, many of which are not adequately maintained, uncertified,

and not accredited, but are intended to serve as active barriers to protect residential, commercial and public utility areas from rising floodwaters. Unfortunately, levee failures are a common occurrence in Illinois annually.

The region's infrastructure is designed based on historic standards that are now outmoded. Across the region, communities are experiencing greater risks of flooding due to inadequate infrastructure design. A storm event of 4.47 inches of rain in 24 hours is typically used for the design and engineering of stormwater systems. Such an event is assumed to have a 10 percent chance of occurring in any given year (a 10-year storm). Similarly, 7.58 inches of rain in 24 hours is the design storm for flood protection purposes, which represents a storm assumed to have a 1 percent chance of occurring in any given year (a 100-year storm). The historical frequency of these two extreme events shows that we are already underestimating the occurrence of extreme rainfall that can overwhelm stormwater systems and cause flooding. Historical analysis of heavy precipitation events in Chicago indicate that the rare 24-hour, 100-year storm, which on average occurs once in every 100 years, has been met or exceeded three times at Chicago O'Hare since the 1980s.

What have you already done to address the risk from this vulnerability(ies)? What barriers are keeping you from completing a solution?

For a discussion of what the State has already done to address the risk from floodplain and urban flooding, please refer to the narratives provided in:

- Factor 4 Committed Leverage Resources; and
- Factor 5 Items #1 through #8.